**Test of DSSAT-ORYZA2000 linkage** November 16, 2011

ORYZA2000 Filenames: IR72wsn3.t92

From files HD297.exp, HD297\_A11.exp and HD297\_A22.exp.

DSSAT File name: IRCH0301.RIX

\*--------------------------------------------------------------------\*

\* EXPERIMENTAL DATA FILE \*

\* For SCENARIO ANALYSIS

\* \*

\* File name : HD297exp.DAT \*

\* Crop : Oryza sativa cv. Han Dao 297 \*

\* Fertilizer : 225 kg N/ha,

\* Irrigation : Full irrigation throughout growth period \*

\*--------------------------------------------------------------------\*

\*--------------------------------------------------------------------\*

\* 1. Selection of modes of running \*

\*--------------------------------------------------------------------\*

\*-- RICETYPE is to select lowland rice or aerobic/upland rice

RICETYPE = 'LOWLAND' ! Lowland rice

\*RICETYPE = 'AEROBIC' ! Upland or aerobic rice

\*-- RUNMODE: mode of running ORYZA

RUNMODE = 'EXPERIMENT' ! ORYZA simulates particular experiment

\*RUNMODE ='EXPLORATION' ! ORYZA used for exploration

\*-- PRODENV = Production situation setting

\*PRODENV = 'POTENTIAL' ! Potential production

PRODENV = 'WATER BALANCE' ! Production may be water-limited

\*DSSAT: ISWWAT = ‘Y’

\*-- WATBAL is choice of Water Balance

\* needs only be given when PRODENV = 'WATER BALANCE'

WATBAL = 'PADDY' ! PADDY water balance (for lowland soils)

\*WATBAL = 'SAHEL' ! SAHEL water balance (for freely draining upland soils)

\*WATBAL = 'SAWAH' ! SAWAH water balance (for lowland or upland soils)

\*-- NITROENV = Nitrogen production situation setting

\*NITROENV = 'POTENTIAL' ! Potential production

NITROENV = 'NITROGEN BALANCE' ! Production may be nitrogen-limited

\*DSSAT: ISWNIT = ‘Y’

\*-- ETMOD is method for evapotranspiration calculation:

ETMOD = 'PENMAN' ! Penman-based (Van Kraalingen & Stol,1996)

\*ETMOD = 'PRIESTLY TAYLOR' ! Priestly-Taylor (")

\*ETMOD = 'MAKKINK' ! Makkink (Van Kraalingen & Stol, 1996)

\*DSSAT: EVAPO = ‘P’

\*--------------------------------------------------------------------\*

\* 2. Timer data for simulation \*

\*--------------------------------------------------------------------\*

IYEAR = 2003 ! Start year of simulation (year)

STTIME = 136. ! Start time (day number)

FINTIM = 1000. ! Finish time (days after start)

DELT = 1. ! Time step (day)

\*DSSAT: YRSIM = 03136

\*--------------------------------------------------------------------\*

\* 3. Weather station and climatic data for simulation \*

\*--------------------------------------------------------------------\*

WTRDIR = 'D:\Projects\VirtualCrop\RunExamples\China\_Aerobic\' ! Directory of weather data

CNTR = 'CHINA' ! Country code

ISTN = 3 ! Station code

ANGA = 0.29 ! Angstrom A parameter

ANGB = 0.45 ! Angstrom B parameter

TMCTB = 0., 0., ! Table for temperature increase

366., 0. ! Climatic Change studies

FAOF = 1. ! Multipl. factor for pot. evapotranspiration (FAO)

! Value Murty & Tuong

TMPSB = 0. ! Temperature increase in seed-bed due to cover:

! Zero when no cover over seed-bed; 9.5 with seed-bed

\*--------------------------------------------------------------------\*

\* 4. Establishment data

\*--------------------------------------------------------------------\*

\*-- ESTAB is method of establishment: 'TRANSPLANT' or 'DIRECT-SEED'

\*ESTAB='TRANSPLANT'

ESTAB='DIRECT-SEED'

\*DSSAT: PLME = ‘S’

\* Aerobic rice: sowing date 16 May; 50% emergence 24 May

EMD = 141 ! Day of emergence (either direct, or in seed-bed)

EMYR = 2003 ! Year of emergence

SBDUR = 19 ! Seed-bed duration (days between sowing and transplanting)

\*DSSAT: PDATE = 03141 (day 141 is actually May 21, but match ORYZA2000 run)

\* EDATE = 03149 (8 days later)

\*--------------------------------------------------------------------\*

\* 5. Management parameters \*

\*--------------------------------------------------------------------\*

\* rows 30 cm seeding rate: 150 kg/ha (0.02 g per grain)

NPLH = 1. ! Number of plants per hill

NH = 1. ! Number of hills/m2 (13 x 27 cm)

NPLSB = 350. ! Number of plants in seed-bed (???)

NPLDS = 360. ! Number of plants/m2 direct-seeded, according to wheat

! 120kg/ha should be smaller than 210!!!

\*DSSAT: PPOP = 360. plants / m2 in seed bed

\* PPOE = 360.

\*-- Initial data at emergence, for either direct-seeding or seed-bed

\* Standard data used.

LAPE = 0.00005 ! Initial leaf area per plant (m2 plant-1) (according to wheat)

\*LAPE = 0.0001

DVSI = 0.0 ! Initial development stage

WLVGI = 0.0 ! Initial leaf weight

WSTI = 0.0 ! Initial stem weight

WRTI = 0.0 ! Initial stem weight

WSOI = 0.0 ! Initial weight storage organs

ZRTI = 0.0001 ! Initial root depth (m)

\*-- Re-initialization at transplanting (standard data used)

ZRTTR = 0.05 ! Root depth at transplanting (m)

\*---------------------------------------------------------------\*

\* 6. Irrigation switch:

\* Need only to be filled-in when PRODENV = 'WATER BALANCE'

\*---------------------------------------------------------------\*

DVSIMAX = 2.0 ! Development stage after which no more irrigation is applied

\* NEW SETTING, BY TAOLI, 21 MAY 2010

\* The determination for switch critical

ICOMBA = 2 !1: Use Julian day; 2: Use DVS and 3: Use mixture of DVS and Julian day,

\* but the Julian day is not allowed to be smaller than 2

\* Combining irrigation management methods table IRMTAB, it must have at least two lines,

\* X (Julian day or DVS or DVS+Julian, present the switching day), Y (methods in real number)

IRMTAB = 0.,1.0,

2.0,1.0

\*\* Select from the following options:

\*SWITIR = 0 ! No irrigation; rainfed

\*SWITIR = 1 ! Irrigation supplied as input data

\*SWITIR = 2 ! Irrigation at minimum standing soil water depth

\*SWITIR = 3 ! Irrigation at minimum soil water potential

\*SWITIR = 4 ! Irrigation at minimum soil water content

\*SWITIR = 5 ! Irrigation at X days after disapp. standing water

\*SWITIR = 6 ! Irrigation at minimum soil water potential in defined periods only

\*Where do we read the value of SWITR? I don’t see any values set in this file.

\*\* If SWITIR = 1, supply irrigation table, amount of irrigation

\*\* (y in mm) for a given calendar \* day (x), used if

RIRRIT = 1., 0.,

170., 0.,

171., 40.,

184., 0.,

185., 60.,

186., 0.,

198., 0.,

199., 20.,

201., 0.,

221., 0.,

222., 20.,

\* 223., 0.,

228., 0.,

229., 40.,

230., 0.,

253., 0.,

254., 60.,

255., 0.,

365., 0.

\*\* If SWITIR = 2, supply amount of irrigation IRRI (mm)

IRRI2 = 20. ! Irrigation gift (mm)

WL0MIN = 5. ! Minimum standing water depth (mm)

\*\* IF SWITIR =3:

\*\*\*1) supply amount of irrigation IRRI3 (mm)

\*\*\*2) supply minimum soil water potential KPAMIN (KPa)

\*\*\*3) Supply soil layer for which KPAMIN aplied, SLMIN3

IRRI3 = 50. !IT MUST BE REAL DATA

KPAMIN = 10. !IT MUST BE REAL DATA

SLMIN3 = 2 !IT MUST BE INTEGER DATA

\*\* IF SWITIR = 4:

\*\*\*1) supply amount of irrigation IRRI4 (mm)

\*\*\*2) supply minimum soil water conten WCAMIN (-)

\*\*\*3) Supply soil layer for which KPAMIN aplied, SLMIN4

IRRI4 = 75. !IT MUST BE REAL DATA

WCMIN = 0.3662 !IT MUST BE REAL DATA

SLMIN4 =2 !IT MUST BE INTEGER DATA

\*\* IF SWITIR = 5:

\*\*\*1) supply amount of irrigation IRRI5 (mm)

\*\*\*2) supply number of days after disappearence of standing water (WL0DAY) at which irrigation water is applied

IRRI5 = 75. !IT MUST BE REAL DATA

WL0DAY = 5 ! number of days after disappearence of (-) INTEGER!!

\* IF SWITIR = 6:

\*\*\*1) supply amount of irrigation IRRI6 (mm)

\*\*\*2) Supply soil layer for which KPAMIN aplied, SLMIN6

\*\*\*3) period table as "start DVS' 'finish DVS' 'KPAMIN during period'

\* Irrigation will be applied in the periods between 'start DVs' to 'end DVS'

\* and only when the soil water tension in layer SLMIN is above KPAMIN in that period

\* Note: at maximum 5 stages can de defined (no more than 15 data in table)!

IRRI6 = 50. !IT MUST BE REAL DATA

SLMIN6 = 3 !IT MUST BE INTEGER DATA

ISTAGET = 0.00, 0.20, 5.,

0.65, 0.80, 50.,

1.00, 1.20, 5.,

1.50, 1.60, 50.,

1.70, 1.80, 5.

\*--------------------------------------------------------------------\*

\* 7. Nitrogen parameters \*

\*--------------------------------------------------------------------\*

NUTRIENT = 'GENERAL SOM' !USE GENERAL SOIL ORGANIC C AND N MODULE TO HANDLE THE NUTRIENT CHANGES

\*NUTRIENT = 'APSIM SOILN' !USE APSIM SOIL C AND N MODULE TO HANDLE THE NUTRIENT CHANGES, IT CONSISTED

!BY SOILN, POND AND SURFACEOM MODULES

\* Table of recovery fraction of Nitrogen in the soil (-) second column

\* versus development stage (DVS) (first column) STANDARD VALUE

RECNIT =

0.0, 0.30,

0.2, 0.35,

0.4, 0.50,

0.8, 0.75,

1.0, 0.75,

2.5, 0.75

\* NO DATA ON SOILSP: THIS 0.8 IS FOR IRRI CONDITIONS IN THE DS......

SOILSP = 0.8 ! Soil N mineralization rate (kg N/ha/d)

\* Table of fertilizer rate (kg N/ha) (second column) versus days after emergence

\* in the seed-bed (!) (first column)

FERTIL = 0.0,75.0,

56.0,75.0,

76.0,75.0

\*--------------------------------------------------------------------\*

\* 8. Measured data for model calibration and comparison \*

\* And option to force measured LAI during simulation \*

\* (instead of using simulated values) \*

\*--------------------------------------------------------------------\*

\* Observed phenology: only required if program DRATES is run!!

\* Observed phenology: only required if program DRATES is run!!

IDOYTR = 0 ! Day of transplanting (give 0 if direct-seeded)

IYRTR = 0 ! Year of transplanting (give 0 if direct-seeded)

IDOYPI = 205 ! Day of panicle initiation (estimated as same day as jointing)

IYRPI = 2003 ! Year of panicle initiation

IDOYFL = 232 ! Day of flowering

IYRFL = 2003 ! Year of flowering

IDOYM = 277 ! Day of maturity (estimated as 7 d before harvest)

IYRM = 2003 ! Year of maturity

\*DSSAT: FILEA IDAT = 03205

\* FILEA ADAT = 03232

\* FILEA MDAT = 03277

\*Leaf Area Index (m2 leaf / m2 ground):

LAI\_OBS =2003.,141.0,0.0,

2003.0,183.0,1.83,

2003.0,209.0,5.02,

2003.0,223.0,6.25,

2003.0,233.0,6.37,

2003.0,262.0,3.30,

2003.0,277.0,0.00

\*DSSAT: FILET LAID

\*-- Parameter to set forcing of observed LAI during simulation

LAI\_FRC = 0 ! No forcing

\*LAI\_FRC = 2 ! Forcing

\*Green leaf dry wt (kg/ha)

WLVG\_OBS =2003.0,141.0,0.0,

2003.0,183.0,646.27,

2003.0,209.0,2502.89,

2003.0,223.0,3297.57,

2003.0,233.0,3756.28,

2003.0,262.0,2213.33,

2003.0,277.0,0.00

\*DSSAT: FILET LWAD

\*Dead leaf dry wt (kg/ha)

WLVD\_OBS =2003.0,141.0,0.0,

2003.0,183.0,10.48,

2003.0,209.0,150.93,

2003.0,223.0,244.51,

2003.0,233.0,351.15,

2003.0,262.0,2033.68,

2003.0,277.0,2656.17

\*DSSAT: FILET LDAD

\*Stem dry wt (kg/ha)

WST\_OBS =2003.0,141.0,0.0,

2003.0,183.0,646.27,

2003.0,209.0,2301.65,

2003.0,223.0,5406.22,

2003.0,233.0,5267.31,

2003.0,262.0,5122.60,

2003.0,277.0,5524.83

\*DSSAT: FILET SWAD

\*Panicle dry wt (kg/ha)

WSO\_OBS = 2003.0,141.0,0.0,

2003.0,183.0,0.0,

2003.0,209.0,49.45,

2003.0,223.0,1536.93,

2003.0,233.0,2707.28,

2003.0,262.0,5983.60,

2003.0,277.0,7619.48

\*DSSAT: FILET PWAD

\*WAGT dry weight (kg/ha)

WAGT\_OBS =2003.0,141.0,0.0,

2003.0,183.0,1303.02,

2003.0,209.0,5004.92,

2003.0,223.0,10485.23,

2003.0,233.0,12082.02,

\*262.0,10948.04,

2003.0,262.0,15353.21,

2003.0,277.0,15800.48

\*DSSAT: FILET CWAD

\*-- Parameter to set forcing of observed NFLV values during simulation

\*NFLV\_FRC = 0 ! No forcing

\*NFLV\_FRC = 2 ! Forcing

\*---------------------------------------------------------------------------

\*Additional input for night temperature control experiment, if you have temperature control

\*---------------------------------------------------------------------------

ISTEMC = 0 !WHETHER USE TEMPERATURE CONTROL 0 = NO,

\* !1= NIGHT CONTROL, 2=DAY CONTROL

SHOUR = 19. !STARTING TIME FOR TEMPERATURE CONTROL

EHOUR = 5. !ENDING TIME FOR TEMPERATUREL CONTROL

SDAY = 77.

EDAY = 105.

TTEMP = 22. !TARGET TEMPERATURE, -999 MEANS NET CHANGE IS USED

TCHANG = -999. !NET CHANGE OF TEMPERATURE, -999 MEANS TARGET TEMPERATURE IS USED

CONTRM = 1 !1 = CONTROL LOWEST TEMPERATURE, 2 = CONSTANT TEMPERATURE